Climatological Data for December, 1909.

DISTRICT No. 10, GREAT BASIN.

ALFRED H. THIESSEN, District Editor.

GENERAL CLIMATOLOGICAL CONDITIONS.

The most important features of the weather for December were the continuously low temperatures which averaged much below normal, and the abundant moisture.

TEMPERATURE.

The mean temperature for the district, as a whole, was 20.8°, which was 8.4° below normal. All stations reported mean temperatures below normal, and at many stations there were only a few days in the month when normal temperatures prevailed. The highest mean temperatures occurred in the western portion of Nevada, southwest portion of Utah, and in Oregon; the lowest means occurred in eastern Nevada and in Wyoming. The mean temperature ranged from 6.0° at Border, Wyo., to 37.6° at Jean, Nev. As a rule, the greatest deficiencies were reported in the mountains of Utah and in northeastern Nevada, and the least in western Nevada.

The month began with temperatures generally below normal and so continued during the first decade, but on the 10th the pressure was low over the eastern slope of the Rockies and an area of high pressure appeared off the Pacific coast, resulting in much colder weather over the entire Great Basin. A succession of high pressure areas swept across this district during nearly all the remaining portion of the month, resulting in average pressure much above normal, which condition was accompanied by unusually cold weather.

There were two periods of very cold weather. The first extended from the 3d to the 6th and the second from the 10th to the 30th. During the first period the lowest temperatures for the month occurred in Oregon, Nevada, and California; and during the second period the lowest temperatures were reported in Utah, Idaho, and Wyoming. This last cold spell was remarkable for its length and its very low minimum temperatures.

The section director of Wyoming says: "The month was one of the coldest Decembers ever known in southwestern Wyoming. At Border, where records have been kept for 8 years, it was the coldest December on record; but at Evanston, where records have been kept for about 13 years, December, 1898, averaged 0.1° lower than December, 1909." In Utah it was the coldest December on record. December, 1895, is on record as the coldest previous December, but the present December was nearly 2° colder.

The lowest minimum temperature recorded was −30° at Border, Wyo., on the 30th. The highest maximum temperature was 70° at Jean, Nev., on the 2d.

PRECIPITATION.

As usual the monthly precipitation was very unevenly distributed, but was above normal at nearly every station. For the district, as a whole, it averaged 1.88 inches, which was 1.57 inches above normal. The greatest amounts fell in central Utah, western Nevada, and east-central California; the least in south-central Nevada. In Utah and Nevada the average precipitation was about twice the normal amount. Many stations reported very large amounts, as 10.60 inches at Lewers Ranch, Nev., and 12.21 inches at Truckee, Cal.

In Utah precipitation occurred at some point in the State each day during the entire month, except from the 25th to the 30th. It was less general in the remainder of the district. Almost every station reported heavy precipitation on the last day of the month. At many stations the precipitation on the last day of the month was in the form of rain which, together with the rapid rise in temperature on that day, caused floods and washouts at many points. This will be treated more fully in next month's report when reliable information will have been obtained.

The precipitation occurred principally as snow, and reports show that much more than the normal amounts were stored in the mountains. The warm weather on the last day of the month, together with the rain, resulted in the snow packing, a condition favorable to its long retention for next summer's supply.

Large amounts of snow were generally reported. In Utah the greatest amounts were 60 inches at Marion and 72 inches at Greyson. At Deer Park, Cal., which is 7 miles northwest of Tahoe City, the observer reported 75 inches, and at Glen Alpine, Cal., which is 8 miles southwest of Lake Tahoe, 70 inches were recorded. These are some of the largest amounts, and it is estimated that, as a rule, nearly double the normal amount of snow fell in Nevada, while in Utah much more than normal amounts have been measured.

MISCELLANEOUS PHENOMENA.

There was an average of 7 rainy days, 11 clear days, 7 partly cloudy days, and 13 cloudy days for the entire district.

Hail fell at Battle Mountain on the 12th, Carson Dam on the 5th, and Cherry Creek on the 2d, 7th, and 9th.

NOTES.

The section director of California writes: "The ice harvest from the lakes in east-central California will be the heaviest for many years. These lakes supply the ice for northern California and also for the Central Pacific Railroad."

It is noted that Senator Heyburn has introduced a bill authorizing the collection of statistics and information relative to the irrigation of arid lands. It instructs the Director of the Census of 1910 to collect and publish all available information relating to the quantity of land irrigated in the arid regions of the United States, and in each State and county in that section, under federal or State laws; the approximate value of lands per acre before irrigation and since water has been applied; the amount, character and value of irrigated crops produced, the location of the various projects and method of construction, with facts as to their physical condition, approximate cost per acre of putting water on the land, and such other information as may be of interest and value pertaining to the reclamation of the arid lands of the West.

THE AGRICULTURAL ENGINEER AND THE WEATHER BUREAU.

By THOS. H. MEANS, M. Amer. Soc. C. E. Project Engineer of the Truckee-Carson Project.

Meterological records are very essential in the study of those problems which fall to the lot of the engineer who deals with agricultural matters. To-day, perhaps, more than at any other time engineers are being called upon to make investigations and build works in connection with new or improved agricultural developments. The profession of agricultural engineer, so long an important one in Europe, is therefore becoming recognized in the United States. The agricultural engineer is called on to investigate irrigation and drainage works, report on schemes of farm management, control of forests, and so forth. His work is exceedingly varied, he may be called upon to build telephone lines in mountainous regions to maintain communication when the snows are too deep for travel, or he may have to build levees and dams in the valley or flood plain of a large river. Hardly any phase of his work can be satisfactorily accomplished with-